

A contribution to
An analysis of medium to long-term impacts on the Australian Oceans

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1.1 Energy projections

Australia has abundant and various mineral energy resources and a large potential for renewable energy.

The Bureau of Resource and Energy Economics provide energy projections (Bureau of Resources and Energy Economics, 2014), based on the E4cast model, a dynamic partial equilibrium model of the Australian Energy Sector. These projections are based on assumptions on population growth (source: the Australian Bureau of Statistics), economic growth (source: Australian Treasury), energy prices (source: International Energy Agency), electricity generation technologies (source: Australian Energy Technology Assessment), end use energy technology and government policies. The projections for the total energy consumed, produced and exported, are reproduced in Figure 13. The model projects energy consumption by fuel type, industry, and state or territory on an annual basis, accounting for government policies, such as Renewable Energy Target (RET) and the repeal of carbon pricing. The RET aims at encouraging the development of renewable energy projects. It is modelled in E4cast as a constraint on electricity generation.

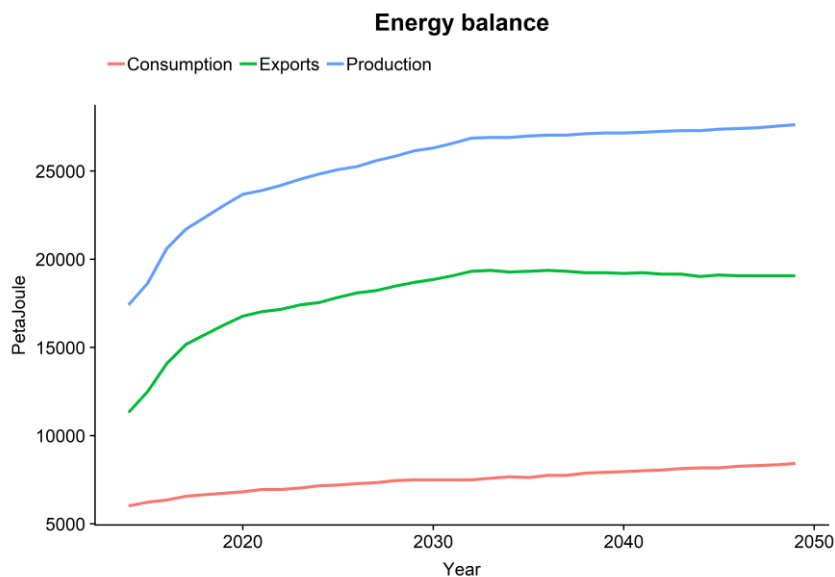


Figure 13 Australian energy balance (PJ).

Over the projection period, energy consumption is expected to keep growing but at a decreasing rate, and the source of energy should transition, with an increasing proportion of renewable. According to the BREE report, the total energy consumption is projected to increase by 42 % (i.e., about 1 % per year in average). Coal and gas are expected to provide the bulk of the energy mix, although their share declines. Renewable energy increases by 0.9% a year, driven by wind and solar energy. Electricity generation and transports remain the main users of primary energy.

The rate of growth of energy consumption is related to GDP. However, over the last 30 years, the rate of growth of energy consumption has been lower than the rate of economic growth, meaning the ratio of GDP to primary energy use is declining.

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